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GNRO-2007/00067

October 15, 2007

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: LER 2007-003-00 - Reactor SCRAM due to Decreasing Coolant Level
Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

Dear Sir or Madam:

Attached is Licensee Event Report (LER) 2007-003-00 which is a final report.

This letter does not contain any commitments.

Yours truly,

CAB/JEO
attachment: LER 2007-003-00
cc: (See Next Page)

cc: NRC Senior Resident Inspector
Grand Gulf Nuclear Station
Port Gibson, MS 39150

U. S. Nuclear Regulatory Commission
ATTN: Mr, Elmo E. Collins (w/2)
Regional Administrator, Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-4005

U. S. Nuclear Regulatory Commission
ATTN: Mr. Bhalchandra Vaidya, NRR/DOLR (w/2)
ATTN: ADDRESSEE ONLY
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NRC FORM 366 (9-2007) | U.S. NUCLEAR REGULATORY COMMISSION | APPROVED BY OMB: NO. 3150-0104 | EXPIRES: 08/31/2010

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Grand Gulf Nuclear Station, Unit 1	05000 416	1 OF 3

4. TITLE
Reactor SCRAM Due to Decreasing Reactor Vessel Water Level

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME: N/A	DOCKET NUMBER: N/A
08	21	2007	2007	- 003 -	00	10	15	2007	FACILITY NAME: N/A	DOCKET NUMBER: N/A

9. OPERATING MODE: 1

10. POWER LEVEL: 100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☒ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Grand Gulf Nuclear Station - James Owens, Senior Licensing Specialist	601-437-6219

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)*	☒ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On August 21, 2007 at 1415 hours Grand Gulf Nuclear Station experienced an actuation of the Reactor Protection System (RPS) which resulted in an automatic reactor shutdown (SCRAM) from 100 percent power due to decreasing reactor water level. The initiation of RPS resulting in an automatic reactor SCRAM is reportable pursuant to 10 CFR 50.73(a)(2)(iv)(A).

At the time of the SCRAM technicians were securing from routine maintenance in the Bailey INFI-90 digital Feed Water control panel for the "A" Feed Pump when an unexpected Power Failure Interrupt (PFI) signal was received. This unexpected signal drove the "A" Feed Pump governor control valve to minimum position which lead to a reactor scram on Level 3 (+11.4 inches) low reactor water level.

The reactor water level did not reach the Level 2 set point (-41.6 inches) for initiation of Emergency Core Cooling Systems (ECCS), therefore no ECCS initiation occurred. All control rods were fully inserted into the core and all other system performed as designed. The normal heat sink (main condenser) remained available therefore no Safety Relief Valve actuations occurred.

The Feed Water panel was inspected and as a precaution, the bus monitor, auto transfer, power supply, and power entry panel were replaced.

A. REPORTABLE OCCURRENCE

On August 21, 2007 at 1415 hours Grand Gulf Nuclear Station experienced an automatic reactor shutdown (SCRAM) from 100 percent power due to decreasing reactor water level caused by partial loss of feed water. Reactor water level decreased to Level 3 (+11.4 inches) which per design, initiated the Reactor Protection System (RPS) SCRAM signal. The initiation of RPS resulting in an automatic reactor SCRAM is reportable pursuant to 10 CFR 50.73(a)(2)(iv)(A) as a 60 day Licensee Event Report.

B. INITIAL CONDITIONS

At the time of the event, the reactor was in OPERATIONAL MODE 1 with reactor power at approximately 100 percent. There were no additional inoperable structures, systems, or components at the start of the event that contributed to the event.

C. DESCRIPTION OF OCCURRENCE

On August 21, 2007 Instrumentation and Controls (I&C) technicians were taking power supply voltages and alternating current ripple measurements in the “A” Bailey INFI-90 digital Feed Water [SJ] control panel. The technicians had completed taking a reading and were in the process of removing their probes from the panel when they noticed an arc followed by the sound of relays changing position resulting in an unexpected Power Failure Interrupt (PFI) signal being generated. This signal drove the “A” Reactor Feed Pump governor control valve to minimum position which lead to a reactor SCRAM on Level 3 (+11.4 inches) low reactor water level. The “A” Feed Pump continued to run which prevented the logic for the Reactor Recirculation System from detecting this condition and initiating a Reactor Recirculation Flow Control Valve “run back” to minimum position to reduce reactor power within the capacity of one Reactor Feed Pump to maintain reactor vessel level. Control room operators tripped the “A” Reactor Feed Water Pump to initiate a Reactor Recirculation Flow Control Valve run back however the timing of these efforts did not prevent the reactor water level from reaching the Level 3 (+11.4 inch) Reaction Protection System SCRAM set point.

The normal heat sink (main condenser) remained available therefore, no Main Steam Safety Relief Valves (MSRV) actuations occurred during the event. All control rods fully inserted and all safety systems functioned as designed and responded properly. This was not a SCRAM with complications.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO.	
Grand Gulf Nuclear Station, Unit 1	05000416	2007	-- 003 --	00	3 of 3

D. APPARENT CAUSE

Investigation to this point has not determined a definitive cause for this event. The panel was thoroughly inspected and no evidence of any failed or damaged components was found. The condition could not be duplicated.

E. CORRECTIVE ACTIONS

Immediate Corrective Actions – Completed inspection of the power entry panel.

The bus monitoring module, auto transfer module, power supply, and the power entry panel were replaced.

Long Term Corrective Actions - Condition Report GGN-2007-04128 was written and will address any additional action that may be necessary as a result of future testing.

F. SAFETY ASSESSMENT

All safety systems responded as designed in this event. No Emergency Core Cooling System (ECCS) initiations were required to maintain reactor vessel inventory. While the Group 2 and 3 Primary Containment Isolation set point of +11.4 inches was reached, no valves changed position because these valves were already in the normal isolated position.

The health and safety of the public was not compromised by this event. This condition did not prevent the fulfillment of a safety function therefore it was not a safety system functional failure.

G. ADDITIONAL INFORMATION

Previous Similar Events - Pursuant to 10CFR50.73(b)(5) this issue is to be an infrequent event. There has not been any occurrence of the same underlying concern in the past two years at Grand Gulf Nuclear Station.